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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/550,463

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EXAMINER

ROJAS, OMAR R

ART UNIT

PAPER NUMBER

2874

MAIL DATE

DELIVERY MODE

06/27/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

9/17

**Office Action Summary**

Application No.

10/550,463

Applicant(s)

GAMBIRASIO ET AL.

Examiner

Omar Rojas

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 19 March 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 19-36 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 19-21 and 23-36 is/are rejected.
- 7) ☒ Claim(s) 22 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on March 19, 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☒ Other: Detailed Action.

**DETAILED ACTION*****Response to Arguments***

1. Applicant's arguments, see pages 4-5 of the response filed March 19, 2007, with respect to claims 19-36 over Broeng (US 6,856,742 B2) have been fully considered and are persuasive.

The rejection of claims 19-36 over Broeng has been withdrawn.

2. Applicant's arguments filed March 19, 2007 with respect to the Sumitomo (EP 1 118 887 A2) have been fully considered but they are not persuasive. With respect to the third embodiment of Sumitomo, applicant(s) argue that Sumitomo does not "indicate that the distance between the centers of any couple of adjacent microstructures is at least equal to about  $\lambda_p$  and not higher than about  $1.5\lambda_p$ ." See page 8 of the response filed March 19, 2007.

However, the distance of  $6.2\text{ }\mu\text{m}$  disclosed by Sumitomo inherently satisfies the claimed distance because the claimed distance, " $\Delta\phi$ ", is actually based upon a variable " $\lambda_p$ " and, therefore, would include a broad range of possible distances. This is because the claimed variable  $\lambda_p$  is based upon an equation involving unspecified variables  $\rho_1$ ,  $\rho_2$ ,  $l_1$ , and  $l_2$ . See page 7 of the response filed March 19, 2007 and/or page 5 of the specification. Thus, the range of possible numerical values for  $\lambda_p$  would appear to be vast, if not infinite, depending upon what numerical values are chosen for  $\rho_1$ ,  $\rho_2$ ,  $l_1$ , and/or  $l_2$ . Therefore, the claimed distance based upon  $\lambda_p$  must also include a vast or infinite range of numerical values. It is further noted that the structure of Sumitomo's third embodiment is otherwise identical to that of the rejected claims. In such a situation, it is not considered unfair or inappropriate for the burden to be placed upon the applicant(s) to prove that the distance of  $6.2\text{ }\mu\text{m}$  disclosed by Sumitomo is not included within the broad range of possible values that is necessarily implicated by the claimed distance variable  $\Delta\phi$ .

***Drawings***

3. The drawings were received on March 19, 2007. These drawings are acceptable.

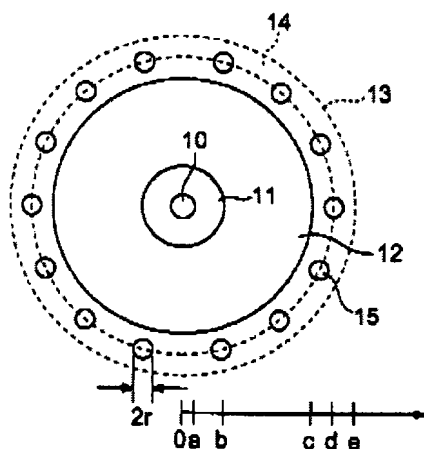
***Claim Rejections - 35 USC § 102***

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. **Claims 19-21 and 23-36 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by EP 1118887 A2 to Sumitomo Electric Industries, Ltd (hereinafter "Sumitomo"). Sumitomo was previously made of record.**

*In re* claims 19, 20, 32, and 36, the Sumitomo document discloses a microstructured optical fiber (Fig. 14) comprising a core region **10** with a material having a refractive index  $n_0$  and a microstructured region **13** surrounding the core region **10** with a background material having a refractive index  $n_{31}$  which is lower than the refractive index  $n_0$  (§§ [076]-[077]) the microstructured region comprising a plurality of voids/microstructures **15** having a refractive index  $n_{32}$  different from the refractive index  $n_{31}$ , the distance  $L$  between the centers of any couple of adjacent voids **15** is  $6.2\ \mu\text{m}$  (§ [079]). The distance of  $6.2\ \mu\text{m}$  disclosed by Sumitomo is inherently included within the claimed range of between  $\lambda_p$  and about  $1.3\ \lambda_p$  because the claimed range is based upon a variable " $\lambda_p$ " having a broad, if not infinite, range of possible numerical values. Furthermore, the physical structure of Sumitomo's fiber is otherwise identical to that claimed. See §§ [053],[054],[061], and [076]-[080] for further details. Figure 14 of Sumitomo is reproduced below.

**Fig.14**



*In re* claim 21, the claimed distance " $\Delta_p$ " is based upon a variable " $\lambda_p$ " having a broad, if not infinite, range of possible numerical values. Therefore, the distance in Sumitomo between the center of the innermost void 15 and the edge of the core 10 is inherently included with the broad range implicated by claim 21. Furthermore, the physical structure of Sumitomo's fiber is otherwise identical to that claimed.

*In re* claims 23 and 24, if  $\lambda_p$  is chosen to be  $5\text{ }\mu\text{m}$  and  $\Delta_\Phi$  is chosen to be  $1.24\lambda_p$  (as would clearly be possible in view of the range(s) specified by claims 1, 23, and 24), then according to claim 1  $\Delta_\Phi$  must be equal to:  $1.24 \times 5\text{ }\mu\text{m} = 6.2\text{ }\mu\text{m}$ . This is the same distance expressly disclosed by Sumitomo. Therefore, there exists numerical values for  $\lambda_p$  and  $\Delta_\Phi$  that would result in a distance equal to that disclosed by Sumitomo

*In re* claims 25-31 and 34, the particular limitations are disclosed by Sumitomo in ¶¶ [076] to [081], Figure 14, and Figure 21.

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*In re* claims 33 and 35, the particular method steps recited by the claims are inherently used to make the optical fiber of Sumitomo because the finished product provided by the claimed method is identical in structure to the optical fiber disclosed by Sumitomo.

***Allowable Subject Matter***

6. Claim 22 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter: With regards to claim 22, the recited distance of  $\Delta_p$  not higher than  $0.75\lambda_p$  implies a proportion between  $\Delta_p$  and  $\Delta_\phi$  that, in the examiner's opinion, is not taught or suggested by Sumitomo.

***Conclusion***

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the

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examiner should be directed to Omar Rojas whose telephone number is (571) 272-2357. The examiner can normally be reached on Monday-Friday (9:00PM-5:00PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rod Bovernick, can be reached on (571) 272-2344. The official facsimile number for regular and After Final communications is (571) 273-8300. The examiner's RightFAX number is (571) 273-2357.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Omar Rojas  
Patent Examiner  
Art Unit 2874

or  
June 23, 2007



**Rodney Bovernick**  
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